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09/990,077	11/21/2001	Hsien-Chung Woo	JNP-0147	1510

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EXAMINER	
ABELSON, RONALD B	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,077	WOO, HSIEN-CHUNG	
	Examiner	Art Unit	
	Ronald Abelson	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-7,9,10 and 12-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-7,9,10 and 12-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US 6,700,868) in view of Gibson (US 6,865,689), Parikh (US 4,551,836), and Wu (US 6,496,481).

Regarding claim 1, Smith teaches a plurality of inputs configured to receive respective incoming streams of data packets (fig. 1 see inputs to boxes 12, 13, col. 3 lines 6-8).

Smith teaches a plurality of outputs configured to transmit respective outgoing streams of data packets (fig. 1 see outputs from boxes 12, 13).

Smith teaches packet forwarding logic configured to form outgoing streams of data packets from the data packets contained in the incoming streams (fig. 1 boxes 12, 13, actively process, col. 4 lines 47-49), using destination address information contained in the data packets of the incoming streams (col. 9

lines 47-50). Note, packet data is forwarded based upon the destination address of the packet.

Smith teaches redundancy logic configured to transmit a first outgoing stream of data packets formed by the packet forwarding logic to a first output and a second output (fig. 1 boxes 21, 22, 12, 13, switching fabrics receive traffic from both tributary cards).

Smith a first service module (fig. 1 box 21) to process data packets contained in the first outgoing stream and a second service module (fig. 1 box 22) to process data packets contained in the first outgoing stream.

Smith is silent on discarding data packets contained in a selected incoming stream from one of a first input or a second input before the data packets contained in the selected incoming stream are included in any outgoing data streams.

Gibson teaches discarding data packets contained in a selected incoming stream from one of a first input or a second input before the data packets contained in the selected incoming stream are included in any outgoing data streams (CRC, col. 4 line 66 - col. 5 line 1).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Smith by CRC encoding

the data. This modification can be performed in software. This modification would benefit the system by providing a method for detecting and discarding data that has been corrupted.

The combination is silent on, in a redundant system, the first and second service modules maintain identical state information based upon state information.

Parikh teaches, in a redundant system, the first and second service modules maintain identical state information based upon state information (col. 2 lines 37-39).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Smith and Gibson by storing identical state information in the switching fabrics (Smith: fig. 1 boxes 21, 22). This modification can be performed in software. The suggestion for the modification is the standby processor can be selected if the active processor fails (Parikh: col. 2 lines 37-39).

The combination is silent on the state information being obtained from the data packets contained in the first outgoing stream.

Wu teaches the state information being obtained from the incoming data packets (col. 6 lines 37-41).

Therefore it would have been obvious to one of ordinary

skill in the art, to modify the system of the combination of Smith, Gibson, and Parikh by transmitting control information in the packet header. This modification can be performed in software. This modification would benefit the system since a separate control channel would not be needed to transmit the control information.

Regarding claim 5, the combination teaches the redundancy logic designates one of the first service module or the second service module to be primary and the other to be secondary and discards the packets contained in the incoming stream from the one of the first or second service modules that is secondary (Smith: col. 3 lines 31-40).

Regarding claim 6, the combination teaches the first service module is initially designated to be primary (Smith: col. 3 lines 31-40).

Regarding claim 7, the combination teaches upon receiving an indication that the first service module has failed and an indication that the second service module is operational, the redundancy logic designates the second service module to be

primary and the first service module to be secondary. (col. 5 lines 31-36). Note, regarding the second service module is determined to be operational, both tributary cards are capable of detecting failure on itself.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination as applied to claim 1 above, and further in view of Xu (US 6,765,907).

The combination is silent on multicast logic for duplicating specified data packets for output to the plurality of outputs.

Xu teaches multicast logic for duplicating specified data packets for output to the plurality of outputs (col. 1 lines 43-45).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of combination by outputting duplicate copies of the data packets. This modification can be performed in software according to the teachings of Xu. This modification would benefit the system by facilitating redundancy.

4. Claims 10, 12-20, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US 6,700,868) in

view of Parikh (US 4,551,836), and Wu (US 6,496,481).

Regarding claims 10 and 15, Smith teaches forming a first data stream from received data packets (fig. 1 see input 60).

Smith teaches transmitting the first data stream to both a first service module and a second service module (fig. 1 see inputs to boxes 12, 13, col. 3 lines 6-8).

Smith teaches receiving an indication of whether the first service module has failed (fig. 3 box 115, col. 5 lines 30-36).

Smith teaches if the indication indicates that the first service module has not failed, discarding packets processed by the second service module; and if the indication indicates that the first service module has failed, discarding packets processed by the first service module (col. 3 lines 31-40).

Regarding claim 15, Smith teaches packet forwarding logic uses destination address information within the packets to form the stream (col. 9 lines 47-50). Note, packet data is forwarded based upon the destination address of the packet.

Smith is silent on, in a redundant system, identical state information is maintained in each of the first and second service modules based upon state information obtained from the

transmitted first data

Streams.

Parikh teaches, in a redundant system, the first and second service modules maintain identical state information based upon state information (col. 2 lines 37-39).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Smith by storing identical state information in the tributary cards (Smith: fig. 1 boxes 12, 13). This modification can be performed in software. The suggestion for the modification is the standby processor can be selected if the active processor fails (Parikh: col. 2 lines 37-39).

The combination is silent on the state information being obtained from the data packets contained in the first outgoing stream.

Wu teaches the state information being obtained from the incoming data packets (col. 6 lines 37-41).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Smith and Parikh by transmitting control information in the packet header. This modification can be performed in software. This modification would benefit the system since a separate control channel would not be needed to transmit the control

information.

Regarding claim 16, Smith teaches an ingress port for receiving an incoming stream of data packets (fig. 1 box 5),

Smith teaches a transfer unit (fig. 1 box 5) configured to transmit the data packets contained in the received incoming stream to each of a plurality of forwarding planes connectable to the interface modules (fig. 1 boxes 12, 13, col. 3 lines 6-8).

Smith teaches an egress port for transmitting an outgoing stream of data packets (fig. 1: see outputs of box 12 on right side).

Smith teaches a switchover unit configured to select one of the plurality of forwarding planes connectable to the interface module and to form the outgoing stream of data packets from data packets received from the selected forwarding plane (col. 3 lines 31-41).

Smith is silent on, in a redundant system, identical state information is maintained in two or more of the plurality of forwarding planes based upon state information obtained from the transmitted data packets.

Parikh teaches, in a redundant system, identical state information is maintained in two or more of the plurality of forwarding planes (col. 2 lines 37-39).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Smith by storing identical state information in the tributary cards (Smith: fig. 1 boxes 12, 13). This modification can be performed in software. The suggestion for the modification is the standby processor can be selected if the active processor fails (Parikh: col. 2 lines 37-39).

The combination is silent on the state information being obtained from the from the transmitted data packets.

Wu teaches the state information being obtained from the transmitted data packets (col. 6 lines 37-41).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Smith and Parikh by transmitting control information in the packet header. This modification can be performed in software. This modification would benefit the system since a separate control channel would not be needed to transmit the control information.

Regarding claim 18, Smith teaches a first and second forwarding planes (fig. 1 boxes 21, 22), each configured to receive packets from a plurality of interface modules (fig. 1 boxes 12, 13) and transmit received packets to the plurality of interface modules (fig. 1 boxes 21, 22).

Smith teaches a first interface module coupled to the first and second forwarding planes (fig. 1 box 12), the first interface module receiving packets contained in an incoming stream at an ingress port (fig. 1 box 5, col. 3 lines 6-8) and transmitting the packets to the first forwarding plane and the second forwarding plane (fig. 1 box 12 see outputs to boxes 21, 22), the first interface module further receiving packets from each of the first and second forwarding planes (fig. 1 box 12: see inputs from boxes 21 and 22) and transmitting at an egress port packets from a selected one of the first and second forwarding planes (fig. 1 box 5, col. 4 lines 59-61).

Smith is silent on, in a redundant system, identical state information is maintained in two or more of the plurality of forwarding planes based upon state information obtained from the received data packets.

Parikh teaches, in a redundant system, identical state information is maintained in two or more of the plurality of forwarding planes (col. 2 lines 37-39).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Smith by storing identical state information in the tributary cards (Smith: fig. 1 boxes 12, 13). This modification can be performed in software. The suggestion for the modification is the standby processor can be selected if the active processor fails (Parikh: col. 2 lines 37-39).

The combination is silent on the state information being obtained from the from the received data packets.

Wu teaches the state information being obtained from the received data packets (col. 6 lines 37-41).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Smith and Parikh by transmitting control information in the packet header. This modification can be performed in software. This modification would benefit the system since a separate control channel would not be needed to transmit the control information.

Regarding claims 12 and 26, initially designating the first service module to be active, and designating the second service module to be active if the indication indicates that the first service module has failed and the second service module is

determined to be operational (col. 5 lines 30-36). Note, regarding the second service module is determined to be operational, both tributary cards are capable of detecting failure on itself.

Regarding claim 13, the combination teaches if the indication indicates that the first service module has not failed, forming outgoing streams from at least data packets processed by the first service module (Smith: col. 3 lines 31-41). Note, if no error detected the first service module is assumed not to have failed.

Regarding claim 14, the combination teaches if the indication indicates that the first service module has failed, forming outgoing streams from at least data packets processed by the second service module (Smith: fig. 3 box 115, col. 5 line 30-36).

Regarding claim 17, the combination teaches the switchover unit selects one of the plurality of forwarding planes in response to receipt of a signal indicating the status of one or more of the plurality of forwarding planes (Smith: fig. 3 box 115, col. 5 line 30-36).

Regarding claim 19, a routing engine, coupled to each of the first and second forwarding planes, for computing route information using routing protocols (Smith: box 6,7, 24, 26, distribution blocks, col. 4 lines 6-10).

Regarding claim 20, each of the first and second forwarding planes forwards received packets for transmission based on address information contained in respective packets and route information computed by the routing engine (Smith: col. 9 lines 47-50). Note, packet data is forwarded based upon the destination address of the packet.

Regarding claim 23 and 25, the received packets comprise at least one of the data packets or control packets (Smith: data, col. 1 lines 13-16).

Regarding claim 24, the data packets comprise historical state information (Parikh: col. 2 lines 37-39).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith, Pakith, and Wu as

applied to claim 18 above, and further in view of Robinson (US 6,963,926).

The combination is silent on the first interface module selects one of the first or second forwarding planes in response to a signal indicating the status of one or more of the forwarding planes.

Robinson teaches a method for selects one of the first or second forwarding planes in response to a signal indicating the status of one or more of the forwarding planes (crankback: col. 5 lines 10-12).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by performing crankback for a failed device. This modification can be performed in software. This modification would benefit the system by having a receiving node inform the nodes that transmit to it that it is no longer operative.

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Smith, Pakith, and Wu as applied to claim 19 above, and further in view of Goldband (US 6,434,532).

The combination is silent on state information comprises configuration information.

Goldband teaches on state information comprises configuration information (col. 4 lines 10-15).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by transmitting configuration information as part of the state information. This modification can be performed in software. This modification would benefit the system by providing configuration information to downstream nodes.

Response to Arguments

7. Applicant's arguments with respect to amended independent claims 1, 10, 15, 16, and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this

action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (571) 272-3165. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronald Abelson
Examiner
Art Unit 2616

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CHI PHAM
SUPERVISORY PATENT EXAM

5/26/06